September 2, 2005

Mr. P. M. Whaley
Manager, KSU Research Reactor
Department of Mechanical and Nuclear Engineering
112 Ward Hall
Kansas State University
Manhattan, KS 66506-2500

SUBJECT: ISSUANCE OF AMENDMENT NO. 16 TO FACILITY LICENSE NO. R-88 - KANSAS STATE UNIVERSITY (TAC NO. MC8056)

Dear Mr. Whaley:

The U.S. Nuclear Regulatory Commission (Commission) has issued the enclosed Amendment No. 16 to Facility License No. R-88 for the Kansas State University Research Reactor. The amendment consists of changes to the Facility Operating License in response to your application of June 20, 2005.

The amendment increases the possession limit of uranium-235 enriched to 20% or less from 3.98 Kg to 4.20 Kg in the form of TRIGA fuel elements for use in reactor operation.

In addition this letter informs you that in the safety evaluation (SE) that was an enclosure for Amendment No. 15 to Facility License No. R-88, issued February 12, 2004, there was a typographical error. The second sentence of the SE was:

> The amendment would maintain the possession limit of contained uranium-235 with enrichment at greater than or less than 20 percent at 3.98 kg for use as reactor fuel and increase from 20 grams to 90 grams the authority to receive, possess, and use fully enriched uranium-235 for use in fission chambers and reactor experiments.

It should read:

> The amendment would maintain the possession limit of contained uranium-235 with enrichment equal to or less than 20 percent at 3.98 kg for use as reactor fuel and increase from 20 grams to 90 grams the authority to receive, possess, and use fully enriched uranium-235 for use in fission chambers and reactor experiments.

The license condition as stated was correct as stated, however, please annotate your copy of the SE for amendment 15 with the above correction.

A copy of the safety evaluation supporting Amendment No. 16 is also enclosed.

Sincerely,

/RA/

Daniel E. Hughes, Project Manager
Research and Test Reactors Section
New, Research and Test Reactors Program
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Docket No. 50-188

Enclosures: 1. Amendment No. 16
2. Safety Evaluation

cc w/enclosures: Please see next page

cc:

Office of the Governor
State of Kansas
Topeka, KS 66612

Mayor of Manhattan
P.O. Box 748
Manhattan, KS 66502

Test, Research, and Training
Reactor Newsletter
University of Florida
202 Nuclear Sciences Center
Gainesville, FL 32611

The license condition as stated was correct as stated, however, please annotate your copy of the SE for amendment 15 with the above correction.

A copy of the safety evaluation supporting Amendment No. 16 is also enclosed.

Sincerely,

/RA/

Daniel E. Hughes, Project Manager
Research and Test Reactors Section
New, Research and Test Reactors Program
Division of Regulatory Improvement Programs
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ADAMS ACCESSION NO.: ML052220092 **TEMPLATE #: NRR-106**

OFFICE	RNRP:PM		RNRP:LA		OGC		RNRP:SC	
NAME	DHughes		EHylton		MWoods		BThomas	
DATE	8/12/2005		8/10/2005		8/23/2005		8/29/2005	

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KANSAS STATE UNIVERSITY

DOCKET NO. 50-188

AMENDMENT TO FACILITY LICENSE

Amendment No. 16
License No. R-88

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that

   A. The application for an amendment to Facility License No. R-88 filed by Kansas State University (the licensee) on June 20, 2005, conforms to the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the regulations of the Commission as stated in Chapter I of Title 10 of the *Code of Federal Regulations* (10 CFR);

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance that (i) the activities authorized by this amendment can be conducted without endangering the health and safety of the public and (ii) such activities will be conducted in compliance with the regulations of the Commission;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public;

   E. This amendment is issued in accordance with the regulations of the Commission as stated in 10 CFR Part 51, and all applicable requirements have been satisfied; and

   F. Prior notice of this amendment was not required by 10 CFR 2.105 and publication of a notice for this amendment is not required by 10 CFR 2.106.

2. Accordingly, the license is amended by changes to Facility License No. R-88 and paragraph 2.B is hereby amended to read as follows:

   2.B. Pursuant to the Act and Title 10, Chapter I, CFR Part 70, “Domestic Licensing of Special Nuclear Material,” to receive, possess, and use up to 4.20 kilograms of contained uranium-235 at enrichments equal to or less than 20 % in connection with operation of the reactor and up to 90 grams of uranium-235 at any enrichment for fission chambers and reactor experiments.

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Brian E. Thomas, Section Chief
Research and Test Reactors Section
New, Research and Test Reactors Program
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Date of Issuance: September 2, 2005

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 16 TO

FACILITY LICENSE NO. R-88

THE KANSAS STATE UNIVERSITY

DOCKET NO. 50-188

1.0 INTRODUCTION

By letter dated June 20, 2005, Kansas State University (KSU or the licensee) submitted a request for amendment to Facility License No. R-88 for the KSU Research Reactor. The amendment would increase the possession limit of contained uranium-235 with enrichment at equal to or less than 20 percent from 3.98 kg to 4.20 kg for use as reactor fuel and maintain at 90 grams the authority to receive, possess, and use uranium-235 at any enrichment for fission chambers and reactor experiments.

2.0 EVALUATION

KSU has requested a change to the possession limit in Facility License No. R-88 for the KSU Research Reactor. The requested change would increase the possession limit in license condition 2.B. of contained uranium-235 with enrichment at equal to or less than 20 percent by 220 grams to 4.20 kg for use as reactor fuel. License states that the increase is to accommodate (1) current inventory, (2) an increase in inventory when the Idaho National Laboratory returns a borrowed element that was lent to them for research purposes, and (3) an increase in fuel inventory by 4 new elements (not currently scheduled for receipt). This increase of about 5% maintains the possession limit within the range of TRIGA-type reactors, however, it will provide the licensee with increased operational flexibility.

The licensee has stated that possession of the additional material does not change the classification category of the facility as described in 10 CFR Part 73. The licensee has not requested any changes to procedural controls, the reactor technical specifications, security plan, or emergency plan, which indicates that the additional material will be received, possessed, and used under the current terms of the reactor license. The increase in the special nuclear material possession limit does not impact the security requirements for the facility. The inspection program has found that the licensee has routinely used similar material safely.

The staff has determined that the licensee has shown a need for the requested material under the reactor license and that the licensee's receipt, possession, and use of this material does not introduce any accidents with consequences greater than those already analyzed. Because the

requested material will be possessed under the terms of the existing license conditions (technical specifications, security and emergency plans, and facility procedures), is within the possession limits typically found at TRIGA-type reactors, and because the licensee has shown that it can safely handle similar material, the increase in the special nuclear material possession limit is acceptable to the staff.

3.0 ENVIRONMENTAL CONSIDERATION

This amendment involves changes in the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 or changes in inspection and surveillance requirements. The staff has determined that this amendment involves no significant increase in the amounts, and no significant change in the types of any effluents that may be released off site, and no significant increase in individual or cumulative occupational radiation exposure. Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

4.0 CONCLUSION

The staff has concluded, on the basis of the considerations discussed above, that (1) because the amendment does not involve a significant increase in the probability or consequences of accidents previously evaluated, or create the possibility of a new or different kind of accident from any accident previously evaluated, and does not involve a significant reduction in a margin of safety, the amendment does not involve a significant hazards consideration; (2) there is reasonable assurance that the health and safety of the public will not be endangered by the proposed activities; and (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or the health and safety of the public.

Principal Contributor: Daniel Hughes, NRR, DRIP, RNRP

Date: September 2, 2005